

## MAT 312/AMS 351: Applied Algebra Homework Assignment 8

**Written Assignment due before 6:30pm, MONDAY, 11/04\***

\*Written HW8 can be handed in before the start or at the end of the lecture on Thursday, 10/31, the recitation on Tuesday, 10/29, or the recitation on Wednesday, 10/30. It can also be handed in during the TA's MLC hours, 4:30-6:30pm on Monday, 11/04, or put under the lecturer's office door before **6pm** on Monday, 11/04. Once the TA ends his MLC hours on Wednesday, 11/04, there will be **NO** way of handing in HW8.

Please read Section 5.4 before starting on the problem set.

*Practice Problems (do not hand in; answers in the book): 5.4 2,4-6*

**Written Assignment:** 5.4 1,3,7; Problem D below

*Show your work; correct answers without explanation will receive no credit, unless noted otherwise*

*Please write your solutions legibly; the grader will disregard solutions that he does not find readily readable (you are encouraged to type up your solutions, especially if your handwriting is not absolutely immaculate). The problems on your solutions must appear in the assigned order; out-of-order problems will not be graded. All solutions must be stapled (no paper clips) and have your name (first name first), recitation number (R01 or R02), and HW number in the upper-right corner of the first page; otherwise, you may receive no credit.*

**NO late homework will be accepted**

### Problem D

Show that there is no 2-error-correcting code with 15 message bits and 8 check bits.

*Hint:* count the number of code words and of 1- and 2-bit "mutations".